

Abstract

A transimpedance amplifier, which is useful as an optical fiber preamplifier, is disclosed. The illustrative embodiment exhibits four characteristics. First, it minimizes the equivalent input noise current. Second, it has a wide bandwidth. Third, it has a reasonably large output voltage, and fourth, it is stable over wide temperature and voltage ranges. The illustrative embodiment comprises a transimpedance stage and a gain stage. Both stages employ a pure NMOS design which contributes to the above four advantages. Bandwidth is further increased over the prior art by the use of inductive loads. The inductive loads of the illustrative embodiment are not physical inductors, but transistor-based "active" inductors: the combination of a resistor connected in series with the gate of an NMOS transistor.